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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant: Patrice L. Scheib

Serial No.: 09/824,276

Examiner: Hansen, Colby M.

Filed: April 2, 2001

Group Art Unit: 3682

Title: FIRST GEAR/REVERSE GATE INDICATOR SWITCH

#11/Appeal  
Brief  
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**APPEAL BRIEF UNDER 37 C.F.R. § 1.192**

Sir:

This is an Appeal Brief under 37 C.F.R. § 1.192 appealing the Final Rejection of the Primary Examiner dated May 21, 2003 (Paper No. 7). Each of the topics required by 37 C.F.R. § 1.192 is presented in this Brief and is labeled appropriately. A check in the amount of \$330.00 is enclosed for the appeal brief fee. Should any additional fees or extensions be required, the Commissioner is authorized to charge Deposit Account No. 50-1482, in the name of Carlson, Gaskey & Olds, P.C.

**I. REAL PARTY IN INTEREST**

ZF Meritor, LLC is the real party in interest of the present application. An assignment of all rights in the present application to ZF Meritor, LLC was executed by the inventor and recorded by the U.S. Patent and Trademark Office at **Reel 011677, Frame 0650**.

**II. RELATED APPEALS AND INTERFERENCES**

There are no appeals or interferences related to the present application of which the Appellants are aware.

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**III. STATUS OF CLAIMS**

Claims 11, 13-16 and 19-28, which are presented in the Appendix, stand finally rejected. Accordingly, the Appellants hereby appeal the final rejection of claims 11, 13-16 and 19-28.

#### **IV. STATUS OF AMENDMENTS**

Responsive to a Final Rejection dated May 21, 2003, Appellant filed a Request for Reconsideration under 37 C.F.R. § 1.116 on July 21, 2003. The Examiner entered the Request for Reconsideration in an Advisory Action dated July 29, 2003, but maintained the rejection of all pending claims.

#### **V. SUMMARY OF INVENTION**

The invention is generally directed to a manual transmission 10 having a switch 70 that indicates when a shift lever of a manually controlled transmission is positioned in or entering the first gear/reverse gate. The manual transmission 10 includes a reverse biasing assembly 40 having an interlock 42 and a detent 44. The interlock 42 includes a contoured perimeter 52 having an arcuate surface 54 and an adjacent elevated ramp 56. The detent 44 includes a moveable housing 60 positionable by a spring 58. The moveable housing 60 contacts and rides along the contoured perimeter 52 of the interlock 42 to provide resistance and a distinctive shift feel that offer physical feedback to a user (pages 6-7, paragraphs 23 through 28; Figures 2 and 3). When the manual transmission 10 is in either the first gear or the reverse gear, the interlock 42 is positioned such that the elevated ramp 52 is aligned with the housing 60, compressing the spring 58. The manual transmission further includes a detent switch 64 having a contact pin 66 and a contact switch 70 (page 7, paragraph 29). When the transmission is in the first gear or the reverse gear, the surface of the housing 60 pushes the contact pin 66 against the contact switch 70 to indicate that the transmission 10 is in either the first or reverse gate (page 7, paragraph 27; Figure 2).

When the manual transmission 10 is shifted into another forward gear in the second gate or third gate, the interlock 42 is rotated such that the arcuate surface 54 is aligned with the housing 60, allowing the spring 58 to expand. As the spring 58 expands, the housing 60 moves toward the interlock 42 and the contact pin 66 slides into a recessed portion 72 on the housing 60. The contact pin 66 breaks contact with the contact switch 70 to indicate that the transmission is not in the first or reverse gate (page 8, paragraphs 31-32; Figure 3).

## **VI. REFERENCES OF RECORD**

In the Final Rejection of May 21, 2003, the Examiner relied upon the following prior art references:

- (1) U.S. Patent No. 4,974,468 to Reynolds et al. ("Reynolds"); and
- (2) U.S. Patent No. 4,633,725 to Jones ("Jones").

## **VII. ISSUES**

In the Final Rejection, the Examiner rejected claims 11, 13-16, and 19-28 as being unpatentable under 35 U.S.C. § 103(a) over Reynolds in view of Jones. The issue for this Appeal is therefore:

- (1) whether claims 11, 13-16 and 19-28 are unobvious under 35 U.S.C. § 103(a) over Reynolds in view of Jones.

## **VIII. GROUPING OF CLAIMS**

For purposes of this Appeal, the claims are grouped as follows:

- (1) Claim 11 stands or falls alone;
- (2) Claim 13 stands or falls alone;
- (3) Claims 15 and 25 stand or fall together;
- (4) Claim 16 stands or falls alone;
- (5) Claims 19 and 20 stand or fall together;
- (6) Claim 21 stands or falls alone;
- (7) Claim 22 stands or falls alone;
- (8) Claim 23 stands or falls alone;
- (9) Claim 24 stands or falls alone;
- (10) Claim 26 stands or falls alone;
- (11) Claim 27 stands or falls alone;
- (12) Claim 28 stands or falls alone.

## **IX. ARGUMENTS**

### **(1) Claim 11 is patentable over Reynolds in view of Jones**

Claim 11 was rejected over Reynolds in view of Jones. In the Final Office Action, the Examiner admitted that Reynolds does not disclose the claimed "detent having an external surface with a recess portion," but argued that it would have been obvious to incorporate the detent mechanism of Jones to teach the claimed invention (p. 3). Appellant respectfully disagrees.

As noted in the previous responses, there is no motivation to incorporate the groove structure in Jones with the shift control of Reynolds. Jones teaches a shift rail structure 110 having a groove 122 that engages with a register pin 128 operably coupled to a two-position sensor 132. The pin's position in or out of the groove 122 changes the output of the two-position sensor to reflect the gear range of the transmission (col. 7, lines 31-50). Reynolds teaches a plunger 144 (which the Examiner argues is the claimed detent switch) that is pressed or released by rotation of a bushing 114 (which the Examiner argues is the claimed interlock) rotating about a shift rail 100.

Rather than suggesting a combination of the two references, Reynolds and Jones teach mutually exclusive structures for indicating the shift range. One of ordinary skill in the art, given the teachings of Reynolds and Jones, would implement either a plunger 114 (Reynolds) or a groove and pin structure (Jones) that changes position based on the shift range of the transmission without even considering that the structures could be combined in any way. Nothing in either reference suggests incorporating the groove or other co-acting structure in Jones in any portion of the Reynolds device.

Even if Reynolds and Jones could be combined, no possible interpretation of the proposed combination would render claim 11 obvious. If the groove shown in the shift rail of Jones could be included in the shift rail 100 of Reynolds, this still would not suggest a detent switch that coacts with an external surface of a detent mechanism because, as shown in Figures 6-8 of Reynolds, the shift rail 100 does not contact the plunger member 144 as required by claim 11. If the groove in Jones were included on the bushing 114, the combination may suggest contact between the groove and the plunger member 144, but the combination would then completely fail to contain any interlock structure. If the groove in Jones were included in the vicinity of the plunger assembly 144A (which the Examiner appears to argue is the claimed detent mechanism), the plunger 144 and the groove in plunger assembly 144A may coact, but the plunger assembly would not contact the bushing 144 (which the Examiner argues is the claimed interlock structure). In short, the proposed

combination does not teach the claimed components having the claimed relationship, regardless of how the references are interpreted, because any suggested combination and interpretation would either fail to contain all of the claimed elements and/or fail to have the claimed interaction between the elements.

Because there is no motivation to combine Reynolds and Jones, and because the suggested combination does not teach the claimed invention regardless of how the combination is interpreted, the final rejection of independent claim 11 is improper and should be withdrawn.

(2) **Claim 13 is patentable over Reynolds in view of Jones**

Claim 13 was rejected over Reynolds in view of Jones. As explained above, the proposed combination of Reynolds and Jones fails to teach a detent switch that coacts with an external surface of a housing contacting a rotatable interlock to indicate when the interlock is in a first position. The combination also fails to teach the arcuate surface and raised ramp of claim 16 because, as noted above, nothing in the Reynolds/Jones combination even suggests coaction between the interlock and a detent mechanism. The final rejection of claim 13 is therefore improper and should be withdrawn.

(3) **Claims 15 and 25 are patentable over Reynolds in view of Jones**

Claims 15 and 25 were rejected over Reynolds in view of Jones. As explained above, the proposed combination of Reynolds and Jones fails to teach a detent switch that coacts with an external surface of a housing contacting a rotatable interlock to indicate when the interlock is in a first position. The combination also fails to teach the spring member recited in claims 15 and 25 because nothing in the Reynolds/Jones combination suggests biasing a detent mechanism to contact any surface of the interlock. The final rejection of claims 15 and 25 is therefore improper and should be withdrawn.

(4) **Claim 16 is patentable over Reynolds in view of Jones**

Claim 16 was rejected over Reynolds in view of Jones. As explained above, the proposed combination of Reynolds and Jones fails to teach a detent switch that coacts with an external surface of a housing contacting a rotatable interlock to indicate when the interlock is in a first position. The combination also fails to teach a transmission assembly that links a first interlock position with a reverse gear or first forward gear as recited in claim 16 because the combination does not even suggest an assembly containing components having the claimed relationship. The final rejection of claim 16 is therefore improper and should be withdrawn.

**(5) Claims 19 and 20 are patentable over Reynolds in view of Jones**

Claims 19 and 20 were rejected over Reynolds in view of Jones. As explained above, the proposed combination of Reynolds and Jones fails to teach a detent switch that coacts with an external surface of a housing contacting a rotatable interlock to indicate when the interlock is in a first position. The combination also fails to teach the relationship between the detent mechanism housing and the contact pin recited in claims 19 and 20 because nothing in the combination remotely suggests components that contact each other in the claimed manner. The final rejection of claims 19 and 20 is therefore improper and should be withdrawn.

**(6) Claim 21 is patentable over Reynolds in view of Jones**

Claim 21 was rejected over Reynolds in view of Jones. As explained above, the proposed combination of Reynolds and Jones fails to teach a detent switch that coacts with an external surface of a housing contacting a rotatable interlock to indicate when the interlock is in a first position. The combination also fails to teach the contact pin of claim 21 because such a contact pin still would not overcome the deficiencies in the component relationships noted above with respect to independent claim 11, from which claim 21 depends. The final rejection of claim 21 is therefore improper and should be withdrawn.

**(7) Claim 22 is patentable over Reynolds in view of Jones**

Claim 22 was rejected over Reynolds in view of Jones. As explained above, the proposed combination of Reynolds and Jones fails to teach a detent switch that coacts with an external surface of a housing contacting a rotatable interlock to indicate when the interlock is in a first position. The combination also fails to teach the claimed contact pin operation because nothing in the combination suggests any specific contact relationship between the contact pin and the detent mechanism. The final rejection of claim 22 is therefore improper and should be withdrawn.

**(8) Claim 23 is patentable over Reynolds in view of Jones**

Claim 23 was rejected over Reynolds in view of Jones. As explained above, the proposed combination of Reynolds and Jones fails to teach a detent switch that coacts with an external surface of a housing contacting a rotatable interlock to indicate when the interlock is in a first position. The combination also fails to teach the claimed contact pin operation because nothing in the

combination suggests linking the contact pin engagement with a specific gear. The final rejection of claim 23 is therefore improper and should be withdrawn.

(9) **Claim 24 is patentable over Reynolds in view of Jones**

Claim 24 was rejected over Reynolds in view of Jones. As explained above, the proposed combination of Reynolds and Jones fails to teach a detent switch that coacts with an external surface of a housing contacting a rotatable interlock to indicate when the interlock is in a first position. The combination also fails to teach the claimed contact pin operation because nothing in the combination suggests any specific contact relationship between the contact pin and the detent mechanism. The final rejection of claim 24 is therefore improper and should be withdrawn.

(10) **Claim 26 is patentable over Reynolds in view of Jones**

Claim 26 was rejected over Reynolds in view of Jones. As explained above, the proposed combination of Reynolds and Jones fails to teach a detent switch that coacts with an external surface of a housing contacting a rotatable interlock to indicate when the interlock is in a first position. The combination also fails to teach the claimed contact pin operation because nothing in the combination suggests incorporating a splitter mechanism in a transmission assembly having components that interact in the claimed manner. The final rejection of claim 26 is therefore improper and should be withdrawn.

(11) **Claim 27 is patentable over Reynolds in view of Jones**

Claim 27 was rejected over Reynolds in view of Jones. As explained above, the proposed combination of Reynolds and Jones fails to teach a detent switch that coacts with an external surface of a housing contacting a rotatable interlock to indicate when the interlock is in a first position. The combination also fails to teach the claimed contact pin operation because nothing in the combination suggests any specific contact relationship between the contact pin and the detent mechanism as well as the claimed relationship between the components and a specific gear state. The final rejection of claim 22 is therefore improper and should be withdrawn.

(12) **Claim 28 is patentable over Reynolds in view of Jones**

Claim 28 was rejected over Reynolds in view of Jones. As explained above, the proposed combination of Reynolds and Jones fails to teach a detent switch that coacts with an external surface of a housing contacting a rotatable interlock to indicate when the interlock is in a first position. The

combination also fails to teach the claimed contact pin operation because nothing in the combination suggests a spring member as well as the claimed relationship between the components and a specific gear. The final rejection of claim 28 is therefore improper and should be withdrawn.

**X. CONCLUSION**

For the reasons explained above, the final rejection of claims 11, 13-16 and 19-28 is improper and should be withdrawn.

Respectfully submitted,

CARLSON, GASKEY & OLDS, P.C.


By 

Anna M. Shih  
Reg. No. 36, 372  
W. Maple Road, Suite 350  
Birmingham, MI 48009  
(248) 988-8360

Dated: October 14, 2003

**CERTIFICATE OF MAILING**

I hereby certify that this appeal brief (in triplicate) is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Mail Stop Appeal Brief – Patents, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 14<sup>th</sup> day of October, 2003.

  
Beth A. Beard



## **XI. APPENDIX**

### **Claims on appeal**

11. A manual transmission assembly comprising:  
a shift lever to operatively rotate an interlock;  
a reverse biasing assembly including said interlock rotatable between a first position and a second position, a detent mechanism which substantially contacts said interlock, said detent mechanism including a housing having an external surface with a recessed portion, and said reverse biasing assembly further including a detent switch which coacts with said external surface of said detent mechanism to indicate when said interlock is in said first position;  
a shift rail rotatable and axially moveable by said shift lever, said shift rail rotating with said interlock;  
a plurality of shift forks operatively engageable by said shift rail; and  
a plurality of gears operatively connected to said plurality of shift forks.

13. The manual transmission assembly as recited in claim 11 wherein said interlock further includes a contoured perimeter having an arcuate surface and a raised ramp and said detent mechanism further includes a contact surface which substantially contacts said contoured perimeter of said interlock.

15. The manual transmission assembly as recited in claim 14 wherein said detent mechanism is biased by a spring member to allow said contact surface of said detent mechanism to substantially contact said contoured perimeter of said interlock when said interlock is in said second position.

16. The manual transmission assembly as recited in claim 11 wherein said manual transmission assembly is in a reverse gear or a first forward gear when said interlock is in said first position.

19. The manual transmission assembly as recited in claim 21 wherein said contact pin engages said elevated portion of said exterior surface of said detent mechanism when said interlock is in said first position.

20. The manual transmission assembly as recited in claim 21 wherein said contact pin engages said recessed portion of said exterior surface of said detent mechanism when said interlock is in said second position.

21. The manual transmission assembly as recited in claim 11 wherein said detent switch includes a contact pin that cooperates with said exterior surface of said housing.

22. The manual transmission assembly as recited in claim 19 wherein said contact pin engages said detent switch when said contact pin engages said elevated portion of said detent mechanism.

23. The manual transmission assembly as recited in claim 22 wherein said manual transmission assembly is in a reverse gear or a first forward gear when said contact pin engages said elevated portion of said external surface of said detent mechanism.

24. The manual transmission assembly as recited in claim 20 wherein said contact pin does not engage said detent switch when said contact pin engages said recessed portion of said external surface of said detent mechanism.

25. The manual transmission assembly as recited in claim 15 wherein said spring is in said housing of said detent mechanism.

26. The manual transmission assembly as recited in claim 11 further including a splitter mechanism, and said detent switch provides a signal to said splitter mechanism indicating if said interlock is in said first position or said second position.

27. The manual transmission assembly as recited in claim 13 wherein said contact surface of said detent mechanism substantially contacts said raised ramp of said interlock when said interlock is in said first position, said detent switch including a contact pin that cooperates with said exterior surface of said housing, said contact pin engaging said elevated portion of said exterior surface of said housing of said detent mechanism when said interlock is in said first position, and said contact pin engages said detent switch indicating that said manual transmission assembly is in a reverse gear or a first forward gear.

28. The manual transmission assembly as recited in claim 19 wherein said detent mechanism is biased by a spring member, and said detent switch engages said elevated portion of said external surface of said housing when said manual transmission assembly is in a reverse gear or a first forward gear.